

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

### Improvements in or relating to Pad and Like Saws

5 We, THOS. R. ELLIN (FOOTPRINT WORKS) LIMITED, a British Company, of 31, Hollis Croft, Sheffield, 1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to pad and like saws to receive interchangeable blades.

10 According to the present invention, a pad or like saw handle contains a socket provided with a tapered bore, and a two-part collet fitting wholly within the socket has a corresponding external taper, means being provided to draw the collet into the socket so that its interengagement with the tapered bore causes the two parts of the collet to close into gripping engagement with the tang end of a blade inserted between them.

20 One part of the collet preferably has a peg projecting from its inner face, to enter a corresponding hole in the tang of a blade. The blade is thus gripped frictionally by the collet and also held positively by the peg. The blade may be shouldered, so that as it is drawn by the peg as the collet is drawn into the socket, the shoulders are drawn against the end of the mouth of the socket. The peg may be long enough to enter a registering hole in the inner face of the other part of the collet, and its end may be chamfered or rounded to facilitate entry into the hole in the blade.

35 Advantageously, the collet is rotatable about its axis, so that the plane of a blade gripped between its parts can be twisted to different angular positions with respect to the hand that grips the handle. Preferably, the collet is located positively in each of such adjusted positions, as by forming the mouth of the socket as a regular polygon to receive a correspondingly shaped outer end of the combined two parts of the collet. A regular

octagon enables the collet to be twisted through increments of 45°, thus providing for cutting downwardly, upwardly, and horizontally to either side with respect to the user's hand, and also in four intermediate oblique directions.

The two parts of the collet may normally spring apart, to facilitate entry and removal of a blade when the drawing means is relaxed sufficiently for the end of the collet to protrude from the socket. Spring urge may be conveniently provided by a spring clip that also serves to hold two entirely separate collet parts to a draw-bolt.

A preferred embodiment of a pad saw handle and co-operating blade in accordance with the invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a part-sectional side elevation of the saw handle, showing a blade held to the handle;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a scrap view of the handle alone taken from the left-hand end of Figure 1;

Figure 4 is an enlarged view of the collet and draw-bolt as seen from the right-hand end of Figure 1;

Figure 5 is an enlarged part-sectional view corresponding to part of Figure 2, showing how entry and removal of the blade is effected.

In the figures, a pad saw handle 1 has a pistol type grip 2 and finger guard 3, which is formed integral with the handle by die-casting, although it could be formed alternatively as a separate sheet applied to such a handle where a wider protection for the fingers is desired. A socket 4 has a tapered bore 5 between an octagon mouth 6 and a parallel bore 7, into which fits a collet 8 formed by two parts 9, with corresponding externally tapered portions 10 between parallel shanks

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11 and outer ends 12, which together form an octagon to fit the mouth 6 when the tang 13 of a blade 14 is inserted between the parts 9. The collet parts 9 have registering rec-

5 tangular recesses 15 in their inner faces 16 to receive the square head 17 of a bolt 18, which is therefore held non-rotatably with respect to the collet, and a circular spring clip 19 fits external grooves 20 in the parts  
10 between the position of the recesses 15 and the inner ends 21 of the parts. The bolt 18 passes through a hole 22 in the inner end of the socket 4 and into a recess or aperture 23, where a knurled nut 24 on the bolt is  
15 accessible for rotation by the finger and thumb. One part 9 of the collet 8 has a peg 25 projecting from its inner face 16, to enter a corresponding hole 26 in the tang 13 of the blade 14, and the peg is long enough to  
20 enter a registering hole or dimple 27 in the inner face of the other part of the collet. The end 28 of the peg is rounded to facilitate entry into the hole in the blade.

The head 17 of the bolt 18 acts as a ful-  
25 crum for rocking of the parts 9 by the spring clip 19 when the knurled nut 24 is unscrewed sufficiently for the ends 12 of the collet parts to protrude from the socket 4 at least to the extent shown in Figure 5, the outer ends of  
30 the inner faces 16 thus being urged apart sufficiently for the rounded end 28 of the peg 25 to clear the inner face of the other part by the thickness of the blade 14, to facilitate entry and removal of the blade (or  
35 interchange of blades, which may be different as to type of teeth and/or steel) without removing the collet completely from the socket. Interengagement of the tapered portions 10 of the parts 9 with the tapered bore 5, upon  
40 tightening of the knurled knob 24 on the bolt 18, causes the two parts to close into gripping engagement with the tang of the blade inserted between them. Shoulders 29 on the blade are drawn against the end 30 of the  
45 mouth 6 of the socket, as the peg 25 (which holds the blade positively) is drawn into the socket, thus preventing rocking of the blade about the peg. Although the tang 13 is shown as being considerably less in width  
50 than the socket, the width of the tang of a blade may correspond closely to that of the socket—including that of the tapered bore 5—so that the blade is held with great rigidity.

The blade may be brought into any one  
55 of eight positions in relation to the hand of the user that is most convenient for the sawing duty to be undertaken, by unscrewing the knurled knob 24 until the octagon-forming ends 12 of the collet parts 9 become clear of  
60 the octagon mouth 6 of the socket 4, rotating the collet (and inserted blade) to the desired position, and then tightening the knurled knob.

A projection 31 across the top of the  
65 socket 4 is accessible to the other hand of the

user, for steadying of the saw when initiating a cut and/or for providing additional sawing effort.

#### WHAT WE CLAIM IS:—

1. A pad or like saw handle comprises a  
70 socket provided with a tapered bore, a two-part collet fitting wholly within the socket and having a corresponding external taper, and means to draw the collet into the socket so that its interengagement with the tapered  
75 bore causes the two parts of the collet to close into gripping engagement with the tang end of a blade inserted between them.

2. A saw handle as in Claim 1, wherein one part of the collet has a peg projecting from its inner face, to enter a corresponding  
80 hole in the tang of a blade.

3. A saw handle as in Claim 2, wherein the peg is long enough to enter a registering  
85 hole in the inner face of the other part of the collet.

4. A saw handle as in Claim 3, wherein the end of the peg is chamfered or rounded to facilitate entry into the hole in the blade.

5. A saw handle as in any of Claims 1 to  
90 4, wherein the collet is rotatable about its axis, so that the plane of a blade gripped between its parts can be twisted to different angular positions with respect to the hand that grips the handle.

6. A saw handle as in Claim 5, wherein the  
95 collet is located positively in each of such adjusted positions.

7. A saw handle as in Claim 6, wherein the mouth of the socket is formed as a regular  
100 polygon to receive a correspondingly shaped outer end of the combined two parts of the collet.

8. A saw handle as in any of Claims 1 to  
105 7, wherein the two parts of the collet normally spring apart to facilitate entry and removal of a blade when the drawing means is released sufficiently for the end of the collet to protrude from the socket.

9. A saw handle as in Claim 8, wherein  
110 the spring urge is provided by a spring clip that also serves to hold two entirely separate collet parts to the head of a draw-bolt.

10. A saw blade for use with a handle as  
115 defined in Claim 1, the blade comprising a tang at one end corresponding in width to that of the socket.

11. A saw blade for use with a handle as  
120 defined in any of Claims 2 to 4, the blade comprising a tang at one end of a width not greater than that of the socket in the handle and provided with a hole to correspond to the peg in one of the parts of the collet.

12. A saw blade as in Claim 11, wherein  
125 the blade is provided with shoulders to be drawn against the end of the mouth of the socket as the collet is drawn into the socket.

13. A saw blade as in Claim 11 or Claim  
130 12, wherein the width of the tang corresponds substantially to that of the socket.

14. A pad or like saw handle substantially as hereinbefore described with reference to the accompanying drawings.

5 15. A blade for use with a pad or like saw handle substantially as hereinbefore described with reference to the accompanying drawings.

16. A pad or like saw comprising a handle

and blade substantially as hereinbefore described with reference to the accompanying drawings.

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## PROVISIONAL SPECIFICATION

### Improvements in or relating to Pad and Like Saws

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45 Advantageously, the collet is rotatable about its axis, so that the plane of the blade gripped between its parts can be twisted to different angular positions with respect to the hand that grips the handle. Preferably, the collet is located positively in each of such adjusted positions, as by forming the mouth of the socket as a regular polygon to receive a correspondingly shaped outer end of the combined two parts of the collet. A regular octagon enables the collet to be twisted through increments of 45°, thus providing for cutting downwardly, upwardly, and horizontally to either side with respect to the user's hand, and also in four intermediate oblique directions.

50 The two parts of the collet may normally spring apart, to facilitate entry and removal of a blade when the drawing means is relaxed

sufficiently for the end of the collet to protrude from the socket. Spring urge may be conveniently provided by a spring clip that also serves to hold two entirely separate collet parts to the drawing means. In a preferred construction, the two collet parts have registering recesses in the inner ends of their inner faces, to receive the head of a bolt, a square head fitting triangular recesses preventing rotation of the parts on the bolt, and a circular spring clip fits external grooves in the parts between the position of the recesses and the inner ends of the parts, so that the head of the bolts acts as a fulcrum for rocking of the parts by the parts by the spring pressure, the outer ends of the inner faces thus being urged apart sufficiently for the peg in one part to clear the inner face of the other part by the thickness of the blade. The bolt passes through a hole in the inner end of the socket and is there provided with a nut and interposed washer. After a blade has been inserted, with its hole engaged by the peg, and the collet rotated to bring its octagon into desired relationship with the octagon mouth of the socket, tightening of the nut draws the collet into the socket and the interengagement of the tapered part of the collet with the tapered bore causes the blade to be gripped firmly. The peg also causes the blade tang to be drawn deeper into the socket. With the width of the tang corresponding to that of the socket—including that of the taper bore—the blade is held with great rigidity.

95 The handle is preferably of the pistol-grip type, with a recess along which the bolt stem passes and in which the nut, e.g., a knurled nut, is accessible for access by the finger and thumb. The grip may be provided with a finger-guard, which may be an integral part of a die-cast handle, or may be a separate sheet applied to such a handle where a wider protection for the fingers is desired.

100 The socket-and-collet locating grip provides for ready interchange of blades, which may be different as to type of teeth and/or steel, and for bringing any blade into a twisted position in relation to the hand of the user that is most convenient for the sawing duty to be undertaken, since only partial withdrawal of the collet is needed for its octagon head to

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become clear of the socket for rotation and  
for its inner faces to spring apart sufficiently  
for removal and insertion of a blade tang.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of  
the Original on a reduced scale

